

Remarks:

1. Claim 1 has been amended to correct a spelling error.
2. Claims 10 and 20 have been amended in compliance with the Examiner's suggestions to overcome the 35 U.S.C. 112 rejections in the Detailed Action.
3. Claims 10, 15-21, and 25-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Sudani (US 6,619,616).
 - a. Regarding claim 10, the Examiner asserts that Sudani teaches all of the limitations of applicant's claim 10. Applicants respectfully point out that nowhere in Sudani does it teach "the rod being disposed in the valve housing when in a de-energized configuration to permit the rod, when moving toward an energized configuration, to pre-travel a distance before contacting the ball that is sufficient to reduce a response time of the valve compared to a response time when the rod contacts or is very near to the ball in the de-energized configuration" as is claimed in applicant's claim 10. Neither Sudani, nor any of the other cited references teach or disclose purposely designing a pre-travel distance between the ball and the rod great enough for the purpose of reducing response time of the valve. Sudani merely indicates that the rod should not be in contact with the ball in the de-energized position. This could easily mean a gap of 1 angstrom, which would have no appreciable affect on response time. Because Sudani does not teach the necessity of an adequate gap for reducing response times and the disclosure of Sudani does not necessarily disclose an adequate gap, the Examiner's argument

for applicant's invention being inherent in Sudani is negated (In Re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Applicants have innovatively recognized that actuator response times can be improved by designing in adequate pre-travel and using appropriate materials to minimize the effects of the impact on the ball and the rod (page 7, lines 18-19) without using a larger magnetic package and/or greater current. Applicants contend that this patentably distinguishes the instant invention over the prior art.

- b. Claims 11-19 depend directly or indirectly from claim 10 and therefore, for the at least the reasons cited above, are believed to be in condition for allowance.
 - c. Re claim 20, the same arguments as found in 3(a) above apply. For at least these reasons, applicants contend that claim 20 is in condition for allowance.
 - d. Claims 21 and 25-29 depend from claim 20. For at least the reasons cited above in 3(c), applicants contend that claims 21 and 25-29 are in condition for allowance.
4. Claims 1, 3-9, 11, 13, 14, 22, and 24 are rejected under 35 U.S.C 103(a) as being unpatentable over Sudani.
- a. Regarding claim 1, the Examiner alleges that Sudani discloses the same valve as applicant's claim 1, and that it would have merely been a matter of discovering the optimum workable range for the distance between the rod and the ball. However, as discussed in point 3(a) above, applicant's invention is counter-intuitive with respect to the prior art, which has always sought to minimize the distance between the ball and the rod in the de-energized condition. Applicant's Claim 1 teaches a specific range of gap for a specific purpose that is neither

taught nor suggested by Sudani. As spelled out in 3(a) above, applicant's invention is not inherent in Sudani's disclosure. One skilled in the art would not have been motivated to find the optimum range for the gap because Sudani only teaches that the gap is necessary to close off the valve seat.

- b. Claims 3-9 depend from claim 1, therefore for at least the reasons cited above in point 4(a), applicants contend that claims 3-9 are in condition for allowance.
- c. Claims 22 and 24 depend from claim 20 and therefore, for at least the reasons cited in 3(c) above, applicants contend that claims 22 and 24 are in condition for allowance.

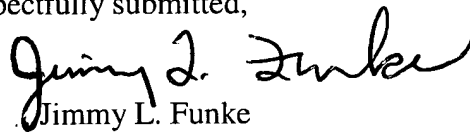
Applicants appreciate the Examiner's thorough examination of the instant application.

Applicants believe that the application is now in condition for allowance and look forward to a timely Notice of Allowance.

Although no fees are believed due, the Commissioner is authorized to charge our Deposit Account No. 50-0831 for any fees or credit the account for any overpayment.

Respectfully submitted,

By



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